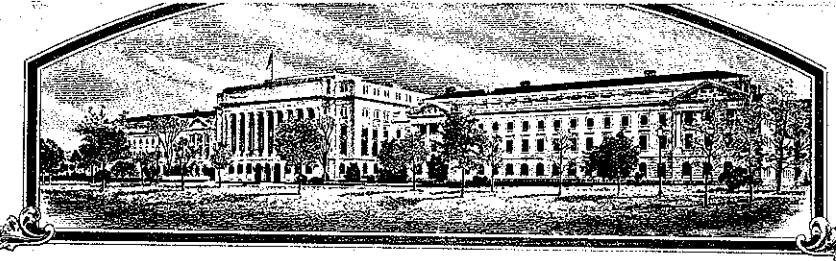
No. 8100028



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Interstate Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

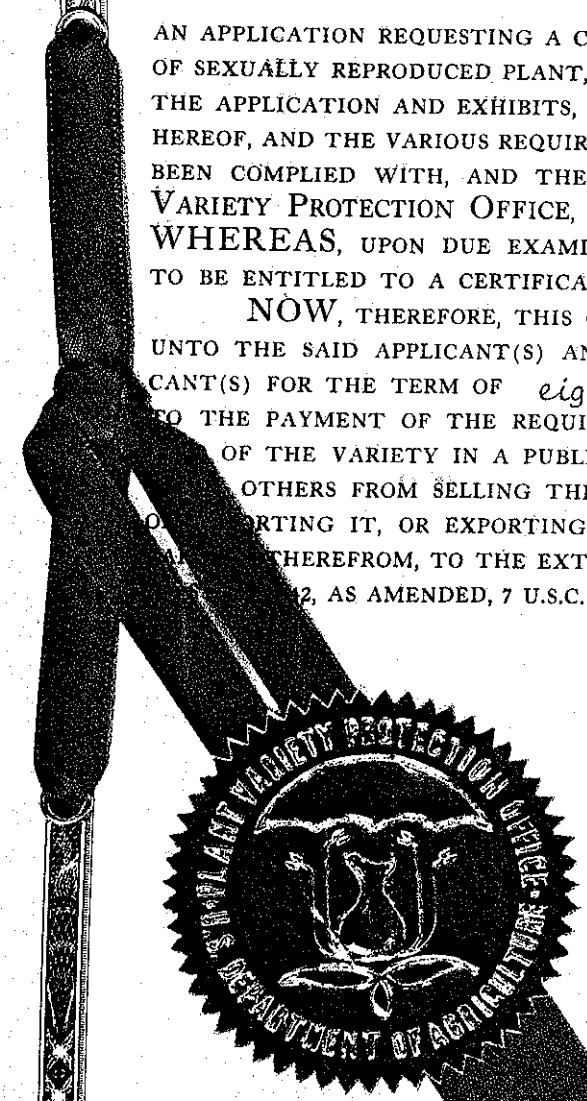
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXOTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, ORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT 2, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SUNFLOWER

'IS 3795'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 27th day of August in the year of our Lord one thousand nine hundred and eighty-one.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
IS 3795	IS 3795	PV NUMBER 8100028
2. KIND NAME: Sunflower	3. GENUS AND SPECIES NAME: Helianthus annuus	FILING DATE: 11/18/80 / TIME: 11:00 A.M. P.M.
4. FAMILY NAME (BOTANICAL): Compositae	5. DATE OF DETERMINATION: November 15, 1978	FEE RECEIVED: $ 500.00 $ 250.00 / DATE: 11/18/80 7/17/81

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Interstate Seed Company	P O Box 470 Fargo, North Dakota 58107	701-235-4431

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	North Dakota	November, 1917

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

Stan Rollin, Seed Consultant, 6802 Orem Drive, Laurel, MD 20810

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [X] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[ ] YES [X] NO	[ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

11-12-80
(DATE)

Mouna Abdallah
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

Interstate Seed Co., Fargo, ND
Appl. No. 8100028
Sunflower inbred line IS3795

13-a. Exhibit A=Origin and breeding history.

1. Pedigree:

IS3795 is a single plant selection from RHA271 which was released in 1973 by the Agricultural Experiment Stations of North Dakota State University, Fargo, ND, College Station, Texas and the United States Department of Agriculture, Agricultural Research Service. A copy of the original release of RHA271 is enclosed.

2. Breeding method used for the development of IS3795:

RHA271 under our growing conditions shows variants in plant height, number of days from emergence to bloom and achene color. Selection among the selfed population of RHA271 was aimed at uniform plant height, bloom and achene color. The selected plants were selfed for three consecutive generations and a progeny test was carried out to ensure homozygosity for the previous characters. Bulk seed of the homozygous families was used to increase the breeder seed of IS3795.

3. Stability and variants:

During our foundation seed increases IS3795 appeared to be stable and uniform for the achene color of solid dark brown to black. It also appeared to be uniform for plant height. We have observed some variants in bloom date. The following table shows the percentage of variants.

Table 3. Percentage of variants in the number of days from emergence to bloom for the sunflwoer inbred line IS3795.

Year and Location	% plants bloomed from 62 to 66 days	% plants bloomed from 67 to 71 days	% of plants bloomed + 72 days
1979 Hendrum, MN	38.70	60.26	1.04
1980 Gilby, ND	42.82	54.20	2.98

Interstate Seed Co., Fargo, ND
Appl. No. 8100028
Sunflower inbred line IS3795

13-b. Exhibit B. Novelty statement

IS3795 is most similar to RHA271 but differs in the following characteristics.

1. IS3795 has achene color of solid dark brown to black whereas RHA271 has achene color of predominantly brown with white stripes and a low frequency of solid brown. (See photos submitted earlier)

2. IS3795 has shown to be more uniform in plant height than RHA271. Based on our uniformity scale* of 1 to 9, IS3795 has shown a score between 1 and 2 whereas RHA271 falls between 5 and 6. The previous information is based on data collected in 1979 and 1980 in different locations.
*Uniformity scale.
1=very uniform
9-disuniform

3. IS3795 has shown to reach bloom earlier than RHA271. The following table shows the number of days from emergence to 1st bloom and full bloom for both inbred lines IS3795 and RHA271.

Table 3. No. of days from emergence to 1st and full bloom for sunflower inbred lines IS3795 and RHA271 in different locations.

Year and Locations	Inbred line	# days to 1st bloom	# days to full bloom
1979 Casselton, ND	IS3795	66	72
	RHA271	71	80
1979 Hunter, ND	IS3795	64	70
	RHA271	69	76
1980 Glyndon, MN	IS3795	63	71
	RHA271	68	75
1980 Hunter, ND	IS3795	62	69
	RHA271	66	73

SUNFLOWER INBRED LINE IS 3795

13. b. Exhibit: Novelty Statement.

IS 3795 is most similar to RHA 271, however, IS 3795 has achene color of solid dark brown to black, earlier in bloom and uniform in plant height; whereas, RHA 271 has an achene color of predominantly brown with white stripes and a low frequency of solid brown, few days later in bloom and disuniform in plant height.

FORM APPROVED OMB NO. 40-R 3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(SUNFLOWER

OBJECTIVE DESCRIPTION OF VARIETY
SUNFLOWER *(HELIANTHUS ANNUUS)*

NAME OF APPLICANT(S)
Interstate Seed Company

VARIETY NAME OR TEMPORARY DESIGNATION
IS 3795 Inbred Line

ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code)*
P O Box 470, Fargo, North Dakota 58701

FOR OFFICIAL USE ONLY
PVPO NUMBER 8100028

Place numbers in the boxes (e.g. [0 8 9]) for the characters that best describe typical plants of this variety. The symbol ▲ indicates decimal.

COMPARISON VARIETIES

NON-OIL: 1 = ARROWHEAD 2 = MINGREN 3 = SUNDAK
OIL: 4 = PEREDOVIK 5 = KRASNODARETS 6 = OTHER RHA 271 Inbred Line

1. CLASS:

[1] 1 = OIL TYPE 2 = NON-OIL TYPE *(confectionery)*

2. MATURITY:

[0 5 1] NO. OF DAYS TO HEAD FIRST VISIBLE *(from emergence)*

[0 4] DAYS EARLIER THAN [6]
HEADING SAME AS [ ]
[ ] DAYS LATER THAN [ ]
} COMPARISON VARIETY

[1 1 1] NO. OF DAYS TO HARVEST RIPENESS *(from emergence)*

[0 7] DAYS EARLIER THAN [6]
MATURITY SAME AS [ ]
[ ] DAYS LATER THAN [ ]
} COMPARISON VARIETY

3. HEIGHT:

[1 5 5] cm TALL AT HARVEST RIPENESS

[0 0 5] cm SHORTER THAN [6]
SAME AS [ ]
[ ] cm TALLER THAN [ ]
} COMPARISON VARIETY

4. STEM:

[0 2 0] LENGTH OF INTERNODE AT HARVEST RIPENESS

[2▲0 0] CM. SHORTER THAN [6]
SAME AS [ ]
[▲] CM. LONGER THAN [ ]
} COMPARISON VARIETY

[5 2] NUMBER OF LEAVES

[ ] FEWER LEAVES THAN [ ]
SAME AS [6]
[ ] MORE LEAVES THAN [ ]
} COMPARISON VARIETY

[3] BRANCHING: 1 = NO BRANCHING 2 = BASAL BRANCHING
3 = TOP BRANCHING *(with central head)* 4 = FULLY BRANCHED *(without central head)*

[1] COLOR OF GROWING POINT: 1 = GREEN 2 = YELLOW

5. LEAVES (Midstem at flowering):

[1][8][0] CM. BLADE LENGTH

[ ][ ] CM. SHORTER THAN [ ]

LENGTH SAME AS [6] COMPARISON VARIETY

[ ][ ] CM. LONGER THAN [ ]

[1][8][0] CM. BLADE WIDTH

[ ][ ] CM. NARROWER THAN [ ]

WIDTH SAME AS [6] COMPARISON VARIETY

[ ][ ] CM. WIDER THAN [ ]

[2] WIDTH: LENGTH RATIO: 1 = NARROWER THAN LONG 2 = EQUAL 3 = WIDER THAN LONG

[1] LEAF SHAPE: 1 = CORDATE 2 = OTHER _____

[1] LEAF APEX: 1 = ACUMINATE 2 = OTHER _____

[1] LEAF BASE: 1 = AURICULATE 2 = TRUNCATE

[3] LEAF MARGIN: 1 = ENTIRE 2 = FINELY CRENATE 3 = COARSELY CRENATE 4 = OTHER _____

[2] DEPTH OF MARGIN INDENTATIONS: 1 = SHALLOW 2 = INTERMEDIATE 3 = DEEP

[2] ATTITUDE: 1 = ERECT 2 = ASCENDING 3 = HORIZONTAL 4 = DESCENDING

[2] SURFACE: 1 = SMOOTH 2 = CRINKLED *(ridged)* 3 = OTHER _____

[3] COLOR: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = BROWN

[1] MARGIN COLOR: 1 = GREEN 2 = YELLOW

6. HEAD AT FLOWERING:

[2] RAY FLOWERS: 1 = ABSENT 2 = PRESENT

[1] RAY FLOWER COLOR: 1 = YELLOW 2 = SULFUR YELLOW 3 = ORANGE YELLOW 4 = OTHER _____

[1] DISK FLOWER COLOR: 1 = YELLOW 2 = RED 3 = PURPLE

[1] ANTHOCYANIN IN STIGMAS: 1 = ABSENT 2 = PRESENT

[2] POLLEN COLOR: 1 = WHITE *(colorless)* 2 = YELLOW

[1] PAPPI: 1 = GREEN 2 = RUST *(red)*

[4][8][0] MM. RAY LENGTH

[ ][ ] MM. SHORTER THAN [ ]

SAME AS [6] COMPARISON VARIETY

[ ][ ] MM. LONGER THAN [ ]

[1][4][0] MM. RAY WIDTH

[ ][ ] MM. NARROWER THAN [ ]

SAME AS [6] COMPARISON VARIETY

[ ][ ] MM. WIDER THAN [ ]

NOV 18 1980

81000?

7. HEAD AT SEED MATURITY:

1 3 8 CM. DIAMETER

_ _ _ CM. NARROWER THAN _

SAME AS _

0 1 4 CM. WIDER THAN 6

} COMPARISON VARIETY

2 RECEPTACLE SHAPE: 1 = FLAT 2 = CONVEX 3 = CONCAVE

4 HEAD ATTITUDE: 1 = VERTICAL *(erect)* 2 = ASCENDING 3 = HORIZONTAL 4 = DESCENDING

1 0 4 8 NO. OF SEEDS PER HEAD

_ _ _ SEEDS / HEAD LESS THAN _

SEEDS / HEAD SAME AS _

1 3 3 SEEDS / HEAD MORE THAN 6

} COMPARISON VARIETY

8. SEEDS:

3 OUTER PERICARP: 1 = CLEAR 2 = STRIPED BLACK 3 = NEARLY SOLID BLACK

1 MIDDLE PERICARP: 1 = WHITE 2 = SOLID PURPLE

1 INNER PERICARP *(seed coat)*: 1 = NO COLOR 2 = BROWNISH BLACK

1 STRIPES: 1 = ABSENT 2 = EVEN BLACK & WHITE STRIPES 3 = BROAD BLACK & NARROW WHITE

4 = BLACK WITH NARROW DARK-GREY STRIPING 5 = OTHER _____

1 MOTTLING: 1 = ABSENT 2 = PRESENT

1 SHAPE: 1 = OVATE 2 = OBOVATE *(shield)* 3 = NARROWLY OBOVATE 4 = OBLONG 5 = ELLIPTIC

1 SHAPE *(cross-section)*: 1 = NOT CURVED 2 = CURVED

0 9 3 MM. LENGTH

_ _ _ MM. SHORTER THAN _

SAME AS _

0 0 3 MM. LONGER THAN 6

} COMPARISON VARIETY

0 5 5 GM. / 100 SEED

_ _ _ GM. LIGHTER THAN _

SAME AS _

0 0 5 GM. HEAVIER THAN 6

} COMPARISON VARIETY

0 0 0 % HELD ON 7.9 MM. (20/64) ROUND-HOLE SCREEN

_ _ _ % LESS THAN _

SAME AS 6

_ _ _ % MORE THAN _

} COMPARISON VARIETY

9. DISEASE AND INSECTS (0 = Not tested, 1 = Susceptible, 2 = Resistant):

[2] RUST *(Puccinia helianthi)*
GIVE RACES: Race 1 and Race 3

[1] VERTICILLIUM WILT *(Verticillium dahliae)*

[2] DOWNY MILDEW *(Plasmorpara halstedii)*

[0] WHITE BLISTER RUST *(Albugo tragopogi)*

[0] BROOM RAPE *(Orobanche cannis)*
GIVE RACES: _____

[0] EUROPEAN SUNFLOWER MOTH *(H. nebullela)*

[ ] OTHER *(specify)* _____

[1] SCLEROTINIA WILT *(Sclerotinia sclerotiorum)*

[1] LEAF MOTTLE *(V. albo-atrum)*

[1] GRAY-MOLD BLIGHT, BUD ROT *(Botrytis cinerea)*

[2] CHARCOAL ROT, STEM ROT *(Macrophomina phaseolin*

[1] SUNFLOWER MOTH, N. AMERICAN HEAD MOTH *(Homoeosoma electellum)*

[ ] OTHER *(specify)* _____

[ ] OTHER *(specify)* _____

10. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE SUBMITTED VARIETY. For the following characteristics indicate degree of resemblance by placing in the column marked, D.R., one of the following numbers:
1 = Submitted variety is less, lighter or inferior than comparison variety 2 = Same as 3 = More than, darker, or superior

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D.R.
Frost resistance	6	2	Leaf attitude	6	2
Lodging resistance	6	3	Head attitude	6	2
Neck or stem strength	6	2	Ray flower color	6	2
Branching type	6	2	Seed shape	6	2
Petiole length			Seed color	6	2
Leaf shape	6	2	Seed striping pattern	None similar	2
Leaf color *(green)*	6	3	Seed yield	6	2

11. GIVE THE FOLLOWING DATA FOR SUBMITTED AND A SIMILAR VARIETY*.

VARIETY	HULL (%)	PROTEIN (%)	OIL (%)	IODINE NO.	FATTY ACIDS	
					OLEIC (%)	LINOLEIC (%)
Submitted		25	40.30	125	18.9	68.2
Similar		20.90	42.60	134	18.8	70.4
Name of similar variety		RHA 271	RHA 271	RHA 271	RHA 271	RHA 271

* Hull, protein and oil percentages expressed for whole undecorticated seed; acids expressed as percentages of oil

12. COMMENTS:

Seed sizing of seed lots of RHA 271 and IS 3795 grown under similar conditions indicate that 70.6% of the seed from IS 3795 will pass over a 10/64" round hole while 52.1% of the seed from RHA 271 will pass over a 10/64" round hole screen.

8

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13. b. Exhibit D = Additional description of IS 3795.

IS 3795 in the Red River Valley of North Dakota and western Minnesota appears to be much more uniform in plant height and flowering than RHA 271. This uniformity is quite important in terms of seed production and the hybrids using IS 3795 as a male pollinator. Uniformity of bloom guarantees the availability of pollen grain need for pollination of the female line used for the hybrid production.

Another important criteria of IS 3795 is the date of bloom. We have observed in our nurseries that IS 3795 blooms from three (3) to five (5) days earlier than RHA 271. Due to the earliness of IS 3795 it nicks well with lines such as Cms HA 89 very well and no split planting is required. In our hybrid production fields using IS 3795 as a male pollinator both parental lines are planted simultaneously.

The uniformity of achene color of IS 3795 which is solid dark brown makes it much more distinct in seed processing and handling over that of RHA 271 which is predominantly brown with white stripes.